

**ABSTRACT OF THE DISCLOSURE**

A routing tree that spans a graph representing a network is constructed by iteratively expanding the tree to include a node of the graph that is not in the tree, the node being chosen because an allowable path extends from a root of the tree to the node that is optimal in comparison with the other paths to the other nodes not in the tree. If the path to the node cannot be extended to a node in the serial restriction group, the node is re-included in the tree using a secondary path to the node that can be extended to a node in the serial restriction group, if the secondary path is most optimal among the paths to nodes outside of the tree.